

**CLAIMS**

1. An information processing terminal system comprising:

an information processing terminal; and

5 a transmitting and receiving unit which can be attached to or detached from said information processing terminal,

wherein said transmitting and receiving unit comprises:

10 a transmission and reception processing section; a demodulation section; a modulation section and a baseband processing section,

when said transmitting and receiving unit is attached to said information processing terminal, said  
15 transmission and reception processing section outputs a reception modulation wave signal from a network to said demodulation section and transmits a transmission modulation wave signal from said modulation section to the network,

20 said demodulation section converts the reception modulation wave signal from said transmission and reception processing section into a reception analog baseband signal,

said baseband processing section converts the  
25 reception analog baseband signal into a reception digital signal to output to said information processing terminal, and converts a transmission

digital signal from said information processing  
terminal into a transmission analog baseband signal,  
said modulation section converts the  
transmission analog baseband signal into the  
5 transmission modulation wave signal,

said baseband processing section and said  
information processing terminal operate in  
synchronization with a clock, and

the reception digital signal contains a  
10 reception data, and the transmission digital signal  
contains a transmission data.

2. The information processing terminal system  
according to claim 1, wherein said baseband processing  
15 section converts the reception analog baseband signal  
into a reception digital baseband signal as the  
reception digital signal to output to said information  
processing terminal; and converts a transmission  
digital baseband signal as the transmission digital  
20 signal from said information processing terminal into  
the transmission analog baseband signal, and

said information processing terminal converts  
the reception digital baseband signal from said  
baseband processing section into the reception data  
25 and converts the transmission data into the  
transmission digital baseband signal.

3. The information processing terminal system

according to claim 2, wherein said information processing terminal comprises:

an interface; and

5 a control unit configured to convert the reception digital baseband signal supplied through said interface from said baseband processing section into the reception data and the transmission data into the transmission digital baseband signal to output to said baseband processing section through said  
10 interface, and

said demodulation section generates and outputs a reception symbol clock having a frequency to said baseband processing section, said interface and said control unit as a clock.

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4. The information processing terminal system according to claim 2, wherein said information processing terminal comprises:

an interface; and

20 a control unit configured to convert the reception digital baseband signal supplied through said interface from said baseband processing section into the reception data, and to convert the transmission data into said transmission digital  
25 baseband signal to output to said baseband processing section through said interface,

said transmitting and receiving unit further

comprises a clock generator,

said demodulation section generates and  
outputs a reception symbol clock having a frequency to  
said clock generator,

5           said clock generator generates a second  
reception symbol clock based on the reception symbol  
clock from said demodulation section to output to said  
baseband processing section, said interface and said  
control unit as a clock, and

10           the second reception symbol clock is  
synchronous with the reception symbol clock and has a  
frequency different from a frequency of the reception  
symbol clock.

15   5.       The information processing terminal system  
according to claim 2, wherein said information  
processing terminal comprises:

an interface; and

20           a control unit configured to convert the  
reception digital baseband signal supplied through  
said interface from said baseband processing section  
into the reception data; and to convert the  
transmission data into the transmission digital  
baseband signal to output to said baseband processing  
25   section through said interface; and

a clock generator,

said demodulation section generates and

outputs a reception symbol clock having a frequency to said baseband processing section, said interface and said clock generator as a clock,

5       said clock generator receives the reception symbol clock from the demodulation section as a first clock, generates and outputs a second clock synchronous with the first clock to said control unit as a clock, and generates the second clock through self-oscillation to output to said control unit as a  
10 clock, when the first clock is not supplied.

6.       The information processing terminal system according to claim 2, wherein said information processing terminal comprises:

15       an interface; and

          a control unit configured to convert the reception digital baseband signal supplied through said interface from said baseband processing section into the reception data; and to convert the  
20 transmission data into the transmission digital baseband signal to output to said baseband processing section through said interface,

          said transmitting and receiving unit further comprises a clock generator,

25       said transmission and reception processing section generates and outputs a reference signal having a frequency to said clock generator,

said clock generator recovers a carrier of the reception modulation wave signal based on the reference signal from said transmission and reception processing section to output to said demodulation section; and generates and outputs a reception symbol clock to said baseband processing section, said interface and said control unit as a clock,

said reception symbol clock is synchronous with the reference signal, and

said demodulation section, said baseband processing section, said interface and said control unit operate in synchronization with the reception symbol clock.

7. The information processing terminal system according to claim 2, wherein said information processing terminal comprises:

an interface; and

a control unit configured to convert the reception digital baseband signal supplied through said interface from said baseband processing section into the reception data; and to convert the transmission data into the transmission digital baseband signal to output to said baseband processing section through said interface,

said transmitting and receiving unit further comprises a clock generator, and

said clock generator generates a clock through self-oscillation to output to said baseband processing section, said interface and said control unit.

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8. The information processing terminal system according to claim 2, wherein said information processing terminal comprises:

an interface;

10 a control unit configured to convert the reception digital baseband signal supplied through said interface from said baseband processing section into the reception data; and

a clock generator, and

15 said clock generator generates a clock through self-oscillation to output to said baseband processing section, said interface and said control unit.

20 9. The information processing terminal system according to claim 1, wherein said baseband processing section converts the reception analog baseband signal into the reception data as the reception digital signal to output to said information processing  
25 terminal and converts the transmission data as the transmission digital signal from said information processing terminal into the transmission analog

baseband signal.

10. The information processing terminal system according to claim 9, wherein said information

5 processing terminal comprises:

an interface; and

a control unit configured to receive the reception data through said interface from said baseband processing section and to output the transmission data to said baseband processing section through said interface, and

said demodulation section generates and outputs a reception symbol clock having a frequency to said baseband processing section, said interface and  
15 said control unit as a clock.

11. The information processing terminal system according to claim 9, wherein said information processing terminal comprises:

20 an interface; and

a control unit configured to receive the reception data through said interface from said baseband processing section and to output the transmission data to said baseband processing section through said interface,

said transmitting and receiving unit further comprises a clock generator,



said demodulation section generates and  
outputs a reception symbol clock having a frequency to  
said clock generator,

said clock generator generates a second  
5 reception symbol clock based on the reception symbol  
clock from said demodulation section to output to said  
baseband processing section, said interface and said  
control unit as a clock, and

said second reception symbol clock is  
10 synchronous with the reception symbol clock and has a  
frequency different from the frequency of the  
reception symbol clock.

12. The information processing terminal system  
15 according to claim 9, wherein said information  
processing terminal comprises:

an interface;

a control unit configured to receive the  
reception data through said interface from said  
20 baseband processing section and to output the  
transmission data to said baseband processing section  
through said interface; and

a clock generator,

said demodulation section generates and  
25 outputs a reception symbol clock having a frequency to  
said baseband processing section, said interface and  
said clock generator as the clock, and

said clock generator receives the reception symbol clock from said demodulation section as a first clock, generates and outputs a second clock synchronous with the first clock to said control unit as a clock, and generates the second clock through self-oscillation to output to said control unit as the clock when the first clock is not received.

13. The information processing terminal system according to claim 9, wherein said information processing terminal comprises:

an interface; and

a control unit configured to receive the reception data through said interface from said baseband processing section, and to output the transmission data to said baseband processing section through said interface,

said transmitting and receiving unit further comprises a clock generator,

20 said transmission and reception processing section generates and outputs a reference signal having a frequency to said clock generator,

said clock generator recovers a carrier of the reception modulation wave signal based on the reference signal from said transmission and reception processing section to output to the demodulation section, and generates and outputs a reception symbol

clock to said baseband processing section, said interface and said control unit as a clock,

said reception symbol clock is synchronous with the reference signal, and

5           said demodulation section, said baseband processing section, said interface and the control unit operate in synchronization with the reception symbol clock.

10 14.       The information processing terminal system according to claim 9, wherein said information processing terminal comprises:

an interface; and

15           a control unit configured to receive the reception data through said interface from said baseband processing section, and to output the transmission data to said baseband processing section through said interface,

20           said transmitting and receiving unit further comprises a clock generator, and

          said clock generator generates a clock through self-oscillation to output to said baseband processing section, said interface and said control unit.

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15.       The information processing terminal system according to claim 9, wherein said information

processing terminal comprises:

an interface; and

a control unit configured to receive the  
reception data through said interface from said

5 baseband processing section, and to output the  
transmission data to said baseband processing section  
through said interface,

said transmitting and receiving unit further  
comprises a clock generator, and

10 said clock generator generates a clock  
through self-oscillation to output to said baseband  
processing section, said interface and said control  
unit.

15 16. An information processing terminal system  
comprising:

an information processing terminal; and

a transmitting and receiving unit which can  
be attached to and detached from said information

20 processing terminal,

wherein said transmitting and receiving unit  
comprises a transmission and reception processing  
section, a demodulation section, a modulation section  
and a baseband processing section,

25 when said transmitting and receiving unit is  
attached to said information processing terminal, said  
transmission and reception processing section outputs

a reception modulation wave signal from a network to said demodulation section and transmits a transmission modulation wave signal from said modulation section to said network,

5           said demodulation section converts the reception modulation wave signal from said transmission and reception processing section into a reception analog baseband signal,

          said baseband processing section converts the  
10 reception analog baseband signal into a reception digital baseband signal and converts a transmission digital baseband signal from said information processing terminal into a transmission analog baseband signal,

15           said modulation section converts the transmission analog baseband signal into a transmission modulation wave signal, and

          said information processing terminal converts the reception digital baseband signal from said  
20 baseband processing section into a reception data and converts a transmission data into the transmission digital baseband signal.

17.       A transmitting and receiving method in an  
25 information processing terminal system in which a detachable transmitting and receiving unit is attached to an information processing terminal, comprising:

(a) in said transmitting and receiving unit,  
demodulating a reception modulation wave signal from a  
network to convert into a reception analog baseband  
signal;

5           (b) in said transmitting and receiving unit,  
converting the reception analog baseband signal into a  
reception digital signal containing a reception data  
in synchronization with a clock;

(c) in said information processing terminal,  
10 receiving the reception digital signal in  
synchronization with a clock;

(d) in said information processing terminal,  
sending a transmission digital signal containing a  
transmission data in synchronization with the clock;

15           (e) in said transmitting and receiving unit,  
converting the transmission digital signal into a  
transmission analog baseband signal in synchronization  
with the clock;

(f) in said transmitting and receiving unit,  
20 converting the transmission analog baseband signal  
into a transmission modulation wave signal; and

(g) in said transmitting and receiving unit,  
transmitting the converted transmission modulation  
wave signal to the network.

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18.       The transmitting and receiving method in the  
information processing terminal system according to

claim 17, wherein said (b) comprises (b1) in said transmitting and receiving unit, converting the reception analog baseband signal into a reception digital baseband signal as the reception digital  
5 signal,

said (c) comprises (c1) in said information processing terminal, converting the reception digital baseband signal into the reception data,

said (d) comprises (d1) in said information  
10 processing terminal, converting the transmission data into a transmission digital baseband signal as the transmission digital signal, and

said (e) comprises (e1) in said transmitting and receiving unit, converting the transmission  
15 digital baseband signal into the transmission analog baseband signal.

19. The transmitting and receiving method in the information processing terminal system according to  
20 claim 17, wherein said (b) comprises (b2) in said transmitting and receiving unit, converting the reception analog baseband signal into the reception data as the reception digital signal,

said (c) comprises (c2) in said information  
25 processing terminal, receiving the reception data,

said (d) comprises (d2) in said information processing terminal, outputting the transmission data

as the transmission digital signal to said transmitting and receiving unit, and

said (e) comprises (e2) in said transmitting and receiving unit, converting the transmission data  
5 into the transmission analog baseband signal.

20. A transmitting and receiving method in an information processing terminal system in which a detachable transmitting and receiving unit is attached  
10 to an information processing terminal, comprising:

(h) in said transmitting and receiving unit, demodulating a reception modulation wave signal from a network to convert into a reception analog baseband signal;

15 (i) in said transmitting and receiving unit, converting the reception analog baseband signal into a reception digital baseband signal;

(j) in said information processing terminal, converting the reception digital baseband signal into  
20 a reception data;

(k) in said information processing terminal, converting a transmission data into a transmission digital baseband signal;

(l) in said transmitting and receiving unit,  
25 converting the transmission digital baseband signal into a transmission analog baseband signal;

(m) in said transmitting and receiving unit,



converting the transmission analog baseband signal  
into a transmission modulation wave signal; and

(n) in said transmitting and receiving unit,  
transmitting the transmission modulation wave signal  
5 to the network.

21. A transmitting and receiving unit in an  
information processing terminal system having an  
information processing terminal and said detachable  
10 transmitting and receiving unit which can be attached  
to or detached from said information processing  
terminal, comprising a transmission and reception  
processing section, a demodulation section, an  
modulation section and a baseband processing section,  
15 wherein when said transmitting and receiving  
unit is attached to said information processing  
terminal, said transmission and reception processing  
section outputs a reception modulation wave signal  
from a network to said demodulation section and  
20 transmits a transmission modulation wave signal from  
said modulation section to said network,

said demodulation section converts the  
reception modulation wave signal from said  
transmission and reception processing section into a  
25 reception analog baseband signal,

said baseband processing section converts the  
reception analog baseband signal into a reception

digital signal to output to said information processing terminal, and converts a transmission digital signal from said information processing terminal into a transmission analog baseband signal,

5           said modulation section converts the transmission analog baseband signal into the transmission modulation wave signal,

          said baseband processing section and said information processing terminal operate in

10       synchronization with a clock, and

          said reception digital signal contains a reception data and the transmission digital signal contains a transmission data.

15       22.       The transmitting and receiving unit according to claim 21, wherein said baseband processing section converts the reception analog baseband signal into a reception digital baseband signal as the reception digital signal to output to said information

20       processing terminal, and converts a transmission digital baseband signal as the transmission digital signal from said information processing terminal into the transmission analog baseband signal, and

          said information processing terminal converts  
25       the reception digital baseband signal from said baseband processing section into the reception data and converts the transmission data into the

transmission digital baseband signal.

23.       The transmitting and receiving unit according to claim 21, wherein said baseband processing section  
5 converts the reception analog baseband signal into the reception data as the reception digital signal to output to said information processing terminal, and the transmission data as the transmission digital signal from said information processing terminal into  
10 the transmission analog baseband signal.

24.       An information processing terminal in an information processing terminal system comprising said information processing terminal and a transmitting and  
15 receiving unit which can be attached to or detached from said information processing terminal,

          wherein said transmitting and receiving unit comprises a transmission and reception processing section, a demodulation section, a modulation section  
20 and a baseband processing section,

          when said transmitting and receiving unit is attached to said information processing terminal, said transmission and reception processing section outputs a reception modulation wave signal from a network to  
25 said demodulation section and transmits a transmission modulation wave signal from said modulation section to said network,

said demodulation section converts the reception modulation wave signal from said transmission and reception processing section into a reception analog baseband signal,

5           said baseband processing section converts the reception analog baseband signal into a reception digital signal to output to said information processing terminal and converts a transmission digital signal from said information processing  
10 terminal into a transmission analog baseband signal,

said modulation section converts the transmission analog baseband signal into a transmission modulation wave signal,

said baseband processing section and said  
15 information processing terminal operate in synchronization with the clock, and

the reception digital signal contains a reception data and the transmission digital signal contains a transmission data.

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25.       The information processing terminal according to claim 24, wherein said baseband processing section converts the reception analog baseband signal into a reception digital baseband signal as the reception  
25 digital signal to output to said information processing terminal, and converts a transmission digital baseband signal as the transmission digital

signal from said information processing terminal into the transmission analog baseband signal, and

said information processing terminal converts the reception digital baseband signal from said  
5 baseband processing section into the reception data and converts the transmission data into the transmission digital baseband signal.

26. The information processing terminal according  
10 to claim 24, wherein said baseband processing section converts the reception analog baseband signal into the reception data as the reception digital signal to output to said information processing terminal, and converts the transmission data as the transmission  
15 digital signal from said information processing terminal into the transmission analog baseband signal.

27. A transmitting and receiving unit in an information processing terminal system comprising an  
20 information processing terminal and said transmitting and receiving unit which can be attached to or detached from said information processing terminal, wherein said transmitting and receiving unit comprises a transmission and reception processing section, a  
25 demodulation section, an modulation section and a baseband processing section,

when said transmitting and receiving unit is

attached to said information processing terminal, said  
transmission and reception processing section outputs  
a reception modulation wave signal from a network to  
said demodulation section and transmits a transmission  
5 modulation wave signal from said modulation section to  
said network,

said demodulation section converts the  
reception modulation wave signal from said  
transmission and reception processing section into a  
10 reception analog baseband signal,

said baseband processing section converts the  
reception analog baseband signal into a reception  
digital baseband signal and converts a transmission  
digital baseband signal from said information  
15 processing terminal into a transmission analog  
baseband signal, and

said modulation section converts the  
transmission analog baseband signal into the  
transmission modulation wave signal.

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28. An information processing terminal in an  
information processing terminal system comprising said  
information processing terminal and a transmitting and  
receiving unit which can be attached to or detached  
25 from said information processing terminal,

wherein said transmitting and receiving unit  
comprises a transmission and reception processing

section, a demodulation section, an modulation section and a baseband processing section,

when said transmitting and receiving unit is attached to said information processing terminal, said transmission and reception processing section outputs  
5 a reception modulation wave signal from a network to said demodulation section and transmits a transmission modulation wave signal from said modulation section to said network,

10 said demodulation section converts the reception modulation wave signal from said transmission and reception processing section into a reception analog baseband signal,

said baseband processing section converts the  
15 reception analog baseband signal into a reception digital baseband signal and converts a transmission digital baseband signal from said information processing terminal into a transmission analog baseband signal,

20 said modulation section converts the transmission analog baseband signal into the transmission modulation wave signal, and

said information processing terminal converts the reception digital baseband signal from said  
25 baseband processing section into the reception data and converts a transmission data into the transmission digital baseband signal.